



Australian Government

Assessment Requirements for UEEEL0071 Select low voltage power factor correction equipment

Release: 2

Assessment Requirements for UEEEL0071 Select low voltage power factor correction equipment

Modification History

Release 2. Minor change. Typographic error in prerequisites corrected.

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least one occasion and include:

- determining the extent and nature of the installation from job specifications
- obtaining and understanding the safety and other regulatory requirements to which the electrical installation shall comply
- determining power factor correction equipment using graphical or mathematical methods
- selecting wiring system suitable for the environment requirements
- selecting cable conductor sizes in consideration to current-carrying capacity and voltage-drop/earth fault-loop limitation
- ensuring coordination between circuit protective device and conductor current-carrying capacity
- selecting compliant earthing system components
- documenting equipment and systems requirements to be used, specification for items selected and reasons for the selections made
- dealing with unplanned events
- applying relevant industry standards
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including using risk control measures
- documenting power factor correction equipment installation details
- following workplace procedures
- performing relevant industry calculations
- selecting power factor correction equipment, including:
 - obtaining and applying safety and relevant industry standards
 - selecting power factor correction equipment.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include

knowledge of:

- power factor correction — equipment selection, including:
 - definitions, concept of power factor and reasons for improving power factor
 - situations leading to reduction of power factor
 - consequences of poor power factor encompassing:
 - demand tariff costs
 - non-compliance with national service provider (NSP) and system energy loss
 - design considerations encompassing:
 - special conditions existing and the suitability for power factor correction (PFC) such as existence of distortion due to electronic loads, uninterruptable power supply (UPS) systems, and power generation facilities or complex electronic loads
 - load profile and the nature of the load in all operating modes and with all possible sources of supply using three phase power recorders
 - power supply quality issues in terms of voltage and frequency stability
 - calculation of corrective VARs
 - circuit protection issues and safety
 - nominal location and arrangement
 - types of capacitors to be used
 - use of synchronous motor for large installations
 - possibility of resonance
 - discharge measures
 - types of PFC controls
 - low voltage (LV) PFC, high voltage (HV) PFC and solid-state switched
 - compliance with Australian Standards (AS) encompassing:
 - AS 1013-1971 Shunt capacitors for connection to power frequency systems
 - AS/NZS 3000 Electrical installations (known as the Australian/New Zealand Wiring Rules)
 - AS/NZS 3947 Low voltage switchgear and control gear
 - testing and commissioning of power factor equipment, including controls
- relevant industry calculations
- relevant industry standards
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications and operating instructions
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and procedures.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated suitable workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or simulations
- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment (PPE) currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, relevant industry standards, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>